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ABSTRACT

With respect to the ultimate goal for limited English proficient students, it would appear that the policy of transitional bilingual education in the United States is explicitly non-bilingual, incorporating a minimalist form of bilingualism for the period students are in the programs, and viewing the first language as only instrumental insofar as it helps in the acquisition of English. Research in second language learning has led to the following conclusions relevant to bilingual educators: (1) the native and second language are complementary rather than mutually exclusive; (2) the native language's structural patterns have minimal influence on patterns, especially syntactic, of second language learning; (3) language proficiency is not unitary but consists of diverse skills, not necessarily correlated; (4) age may constrain some aspects of acquisition; (5) affective factors studied in other language contexts may not be relevant for English as a Second Language; (6) bilingualism is associated positively with greater cognitive flexibility and linguistic awareness; (7) language skills transfer globally rather than piecemeal; and (8) expertise in translation exists in all bilingual children, demonstrating considerable ability to transfer regardless of content. Issues for further collaborative research between researchers of bilingualism and educators of bilingual education include the discrepancy between psycholinguistic and sociolinguistic equity, valuing language diversity as a natural resource, assessment of bilingual students, and developing an international perspective. (MSE)

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Bilingualism And Bilingual Education: A Research Perspective

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Bilingualism Defined

The study of bilingualism has not been exempted from the scholarly tendency to create dichotomies. Popular ones include coordinate vs. compound bilingualism (Weinreich 1953), early vs. late bilingualism (Lambert 1985), simultaneous vs. successive bilingualism (McLaughlin 1984), additive vs. subtractive bilingualism (Lambert 1975), and elite vs. folk bilingualism (Skutnabb-Kangas 1981). While such distinctions have served a purpose in drawing attention to certain aspects of bilingualism, perhaps the most important lesson to be learned from these distinctions is that some of them refer to characteristics of individuals (the first three mentioned), and others to characteristics of social groups (the latter two). Linguists and psychologists have paid primary attention to the individual mental and cognitive properties of bilinguals; linguists and sociologists have attempted primarily to characterize social groups in terms of the configuration of the languages with respect to robustness, prestige, and other sociological and institutional features.

No single definition of individual bilingualism is broad enough to cover all instances of individuals who are called "bilingual." The range can be from native-like control of two or more languages to possessing minimal communicative skills in a second or foreign language. The former will exclude most individuals and create a new definitional problem of what native-like control of a language means. Most experts in the field prefer the latter as the beginning point from which a variety of bilingual skills can develop, including biliteracy (Hornberger 1989).

Similarly, for societal bilingualism, there is a range of possibilities. The United States, for example, is widely recognized as monolingual when judged in terms of its interest and success in the study of foreign languages (Simon 1980). Yet, being a nation of immigrants, it has been host to a broad representation of languages spoken throughout the world, most of which are lost within two or three generations in a process of assimilation (Fishman, Nahirny, Hofman, & Hayden 1966; Veltman 1983). During this process, bilingualism plays a prominent role.

What is bilingual about bilingual education?

Given the conceptual space of individual and societal bilingualism described above, what is the relationship between bilingualism and bilingual education?

Individually, students in bilingual education programs are typically enrolled because they are in the beginning stages of bilingual development, for if the students were proficient in English as well as in their native language, they would probably be placed in all English medium classes. The primary justifications that some give for native language instruction are that the development of a full range of proficiency skills in English takes time; that literacy is best developed in the native language when integrated with activities in which the parents can participate; and, that knowledge acquired during this period through instruction in the native language will transfer to English. However, only a small proportion of bilingual programs in the United States have the continued maintenance of the first language as an explicit goal (Development Associates 1984).

Societally, prevalent views of bilingual education programs would not consider the development of the native language by virtue of its usage in instruction, or even the development of literacy skills in it, an asset. Rather, the first language is generally seen as instrumental insofar as it is helpful in the acquisition of English proficiency and helps students keep pace with the learning of academic content

matter while they acquire sufficient skills in English. With respect to the ultimate goal for limited English proficient students, then, some would conclude that the policy of transitional bilingual education is explicitly non-bilingual and incorporates a minimalist form of bilingualism for the period of time that students are in such programs. This conclusion, of course, is discouraging to advocates who would like to see American students graduating from school with competence in two or more languages. It should be kept in mind, however, that transitional bilingual education programs are often established by statute. Those authorized under provisions of the 1988 Bilingual Education Act provide "structured English language instruction, and, to the extent necessary to allow a child to achieve competence in the English language, instruction in the child's native language" (Cubillos 1988).

Second language learning

Our present understanding of the process of second language learning is far from complete, but our knowledge has increased greatly in the past thirty years. Indeed, our knowledge of second language learning cannot be separated totally from important increments in our general understanding of language and learning. At the risk of being overly technical, one way to characterize the trend in research in learning is in three waves, from empiricism to formal cognitivism to a greater sensitivity of cognitivism to the context in which learning occurs.

Empiricism is characterized by the belief that learning is the result of experience with scant credit given to the structuring of such learning in individuals. Principles of learning based on this belief are extremely general, extending not just across different domains of learning (e.g., learning to ride a bicycle vs. learning to count), but across species as well. In B. F. Skinner's memorable words, "Pigeon, rat, monkey, which is which? It doesn't matter" (quoted in Garcia, McGowan & Green 1972).

This theoretical view of learning was applied to the processes involved in the acquisition of second languages. The empiricist version of second language learning dictated a transfer of habits from the native language to the second language. Similarities between the two languages were seen as facilitating learning (positive transfer), and differences were thought to cause interference (negative transfer). Thus, a native speaker of Spanish might experience positive transfer in learning the English distinction between definite and indefinite articles because such a distinction also exists in Spanish. On the other hand, the learner would experience negative transfer in learning English negation because the negative particle in Spanish usually precedes the verbal element containing the tense marker, while in English negation is usually placed after the verbal element containing the tense marker. (For example, Spanish "Maria no habla italiano" and English "Maria doesn't speak Italian"; the negative transfer into English would occur as "*Maria no speaks Italian").

This paradigm for second language learning as transfer is also reflected in the growth of contrastive analysis, the formal study comparing the structures of two languages for purposes of predicting problems in the learning of a second language. It carries with it the view that the linguistic "reflexes" of the two languages are in competition with each other. This view implies that learning a second language entails suppression of the habits of the first language, or that keeping the first language will impair learning the second language.

For both theoretical and empirical reasons, this empiricist view of second

language learning was rejected and replaced by the formal cognitive view. In the most radical formulation of formal cognitivism, language was thought to be an innate endowment of the human species—a mental organ—and that its development was no more a product of experience than that of a physical organ, such as the liver. A liver develops, as does language, but people do not "learn liver" any more than they "learn language."

Formal cognitivism, crystallized by Chomsky's revolutionary ideas in linguistics in the early 1960's, is characterized by the belief in extreme abstraction and structuring of the learner (Chomsky 1966). This is accompanied by proposals that knowledge is highly domain-specific and species-specific. Perhaps the best metaphor of learning is Chomsky's characterization of the child as having an innate "Language Acquisition Device" that takes imperfect and incomplete linguistic data as input and produces highly detailed and abstract knowledge of linguistic rules as output.

To the extent that language is an innate endowment that unfolds rather than something constructed through experience, the competition between the two languages was no longer the primary focus for understanding second language acquisition. Indeed, much of the research during the 1970's focused on the extent to which grammatical development in the second language was unrelated to the qualities of the native language, as well as the parallels between first and second language development.

The increasing contextualization of these formal cognitive capacities happened on a number of fronts. In sociolinguistics, Labov (1970) showed impressive correlations between language behavior and social class and argued that this systematic variation needed to be part of our knowledge about language. In developmental psychology, the role of the teacher and society became prominent in guiding the interrelationships between the various capacities of children (such as thought and language). In addition, cognitive psychologists increasingly were positing "executive functions" that oversee ordinary cognition and highlighting the development of executive function awareness (known technically as "metacognition") in children. Finally, important overlaps between language and a variety of functions, including discourse, literacy, and social class became more salient as interdisciplinary inquiry flourished.

Our understanding of second language acquisition diversified accordingly, for example, to the domain of language functions (e.g., Snow 1990), transfer of discourse and rhetorical patterns (e.g., contributions in Purves 1988), and biliteracy (e.g., Hornberger 1989). These developments do not deny the existence of the innateness of aspects of language. Rather, they emphasize that any human activity involves synchronizing multiple capacities (language being one). The current state of second language acquisition research can be characterized as a plethora of exciting exploratory studies that examine the overlap between language and its functions: communication, thinking, writing, and so forth.

To summarize research in second language learning, conducted over the course of these shifts in underlying theories over the past thirty years, the following conclusions are relevant to bilingual educators:

(1) The native language and the second language are complementary rather than mutually exclusive. Further, native language proficiency is a powerful predictor of the rapidity of second language development.

There is no empirical support for the view that time spent on the first language detracts from the development of the second language. If anything, greater elaboration of the native language results in more efficient acquisition of the second language. Hakuta (1987), for example, finds a pattern of increasing correlation between Spanish and English vocabulary scores in several groups of Puerto Rican children in bilingual education programs observed longitudinally over a period of three years. Other cross-sectional studies, such as Cummins (1984) and Snow (1987), also report high levels of cross-language correlations among their proficiency measures in the two languages. The fact that older children are more efficient second language learners than younger children is seen as further evidence that stronger first-language proficiency translates into better second language learning.

(2) The structural patterns of the native language have minimal influence on the patterns of second language acquisition, especially at the syntactic level.

Although prevailing theory in the 1960's predicted that the bulk of the difficulty in second language learning consisted of overcoming the previously learned habits of the first language, this view is no longer held by current researchers. All second language learners of English, for example, have much in common in terms of the difficulties they face in learning a second language—regardless of their native languages. Studies of errors made by students acquiring a second language ("error analysis"), for example, those reviewed in McLaughlin (1984, 1985) and earlier studies reviewed in Hakuta and Cancino (1977), generally show measurable but not overwhelming impact of native language structures in second language acquisition. However, interference errors—errors made in the second language and which appear to be the result of first-language interference—are most noticeable and therefore receive a greater share of the attention of teachers and researchers.

(3) Language proficiency is not unitary, but rather consists of a diverse collection of skills that are not necessarily correlated.

A distinction must be made between functional skills used in interpreting language which draws on context from language removed from context. Contextualized language occurs in oral and written forms, as does decontextualized language. Skills used in interpreting contextualized, face-to-face conversational settings develop more rapidly than skills needed to interpret decontextualized language (oral or written). Verbal academic skills, which are crucial for success in school, are needed most often for the purpose of interpreting decontextualized language. Our understanding of "language proficiency" has undergone a transformation similar to our conception of "intelligence" over the years. The earlier view that the complexity of human intelligence could be reduced to a simple single score (on an IQ test) on which individuals can be rank-ordered is no longer considered valid (Sternberg 1985). Similarly, as language ability is studied more extensively, it is seen as complex, beyond the simple notion of "language aptitude." Cummins (1984) and Snow (1987), for example, provide data indicating a distinction between communicative language (in Cummins' terminology, BICS—"basic interpersonal communicative skills") and academic language (CALP—"cognitive-academic language proficiency"), to support a distinction between contextualized and decontextualized language skills. Despite some important differences between these conceptualizations, Cummins and Snow agree on the inadequacy of measuring proficiency in a unidimensional way.

(4) The attainment of age appropriate levels of performance in the

second language can take four to seven years.

Speculation on how quickly children can acquire a second language has resulted in estimates as low as six weeks (Epstein 1977). Presumably, such views of rapid learning are based on informal observations and do not reflect development in all aspects of language use. Collier (1988) recently summarized her own work as well as that of others indicating that limited English proficient students from a variety of language backgrounds do catch up with native-speakers of English. But they take considerably longer than the two to three years often assumed to be the maximum time needed by limited English proficient students for acquiring sufficient proficiency in English. Collier suggests that a minimum of four years may be required by such students, regardless of the type of program or the language and social backgrounds of the students.

(5) Age may be a factor that constrains the acquisition of certain phonological and syntactic features of a second or foreign language, but not its academic functions.

There is no clear evidence for a biologically determined critical period near puberty before which second language acquisition happens easily, and after which it happens with difficulty. In the short term at least, there is good evidence that older learners are better due to their greater cognitive maturity, although specific ages have yet to be determined (Snow and Hoefnagel-Hohle 1977). Collier (1988) suggests that children between the ages of eight and twelve are the most advantaged second language learners. Studies of older limited English proficient people who began studying English at a mature age suggest that the acquisition of phonological and grammatical skills in a second language decline with age, but that this decline is characterized as slow and linear. In sum, age does not limit the acquisition of a second language.

(6) Although affective factors are related to second language learning, those studied in a foreign-language context may not be applicable to limited English proficient individuals learning English as a second language in the United States.

Studies by Gardner (1985) and colleagues of English-speaking Canadian high-school students learning French point strongly to the role of attitudes and motivation in the success of foreign-language study during adolescence. These studies can only be generalized with great caution to the learning of English by limited English proficient students in the United States. The Canadian studies are of students formally learning a language that is not part of the larger social milieu, since they are conducted in English-speaking parts of Canada. Indeed, they are analogous to the learning of Spanish as a foreign language by native-speakers of English in the United States. Further, the variables of attitude and motivation studied among adolescent foreign-language learners may not be applicable in the same way to limited English proficient children or adults in this country who are often highly motivated to learn English, and do so quite rapidly. In one study of students of Mexican descent in Northern California, Hakuta and D'Andrea (1990) discovered that attitude was a far better predictor of the extent to which the students maintained Spanish rather than how quickly or how well they learned English.

Bilingualism and cognitive development

The research on the effects of bilingualism on mental development dates back to the birth of IQ tests and their use in the debate over immi-

gration policy in the early part of this century. This complex history (recounted in detail in Hakuta 1986) is rooted in the erroneous belief that bilingualism can cause mental retardation and a variety of other undesirable outcomes. Many of the social policy issues concerning the wave of immigration from eastern and southern Europe in the past are being replayed in contemporary fashion over the current cohort of immigrants.

Through improvements in research methodology, as well as by expanding the definitions of what is meant by "bilingualism" and by "mental functioning," it became evident that the claims about the negative impact of bilingualism were alarmist and rooted primarily in social prejudice about new immigrants. As the theoretical paradigm concerned with human cognitive functioning shifted from empiricist to cognitivist to contextualization, the complexity of the phenomenon of bilingualism has come to be appreciated better. And, with such appreciation, much of the misunderstanding of bilingualism has begun to dissipate. The following conclusions emerge:

(7) Bilingualism is associated positively with greater cognitive flexibility and awareness of language.

Comparisons of bilingual and monolingual children, as well as comparisons of bilingual children of varying levels of development, indicate that bilingualism can lead to superior performance on a variety of intellectual skills (see Diaz 1983 for a review). These can range from performance on tests of analysis of abstract visual patterns to measures of metalinguistic awareness—the ability to think abstractly about language and appreciate linguistic form rather than content (for example, the ability to observe that the sentence "The birds is eating" makes perfect sense, but does not follow the conventions of the variety of English usually used in academic settings). There is some controversy over the conditions under which these positive advantages of bilingualism appear, as well as over the specific mechanisms that cause these effects (see Diaz 1985; Cummins 1976; Hakuta 1986), but there is widespread agreement among researchers that these effects are real. And there is overwhelming rejection of earlier research suggesting negative intellectual consequences of bilingualism.

Cross-language transfer of skills and knowledge

One of the most fundamental assumptions underlying the efficiency of bilingual instruction is that skills and knowledge learned in the native language transfer to English. Thus, a child learning about velocity in Spanish should be able to transfer this knowledge to English without having to relearn the concepts, as long as the relevant vocabulary (in English) is available. Indeed, having the content knowledge already available should greatly facilitate the learning of the appropriate vocabulary items (in the second language) since they provide what Krashen (1985) calls "comprehensible input."

In part because of the obviousness that such transfer will occur, little research exists to demonstrate this. Lambert and Tucker (1972), in reviewing the results of their classic study of Canadian French immersion programs (where the native English-speaking children received instruction exclusively in the minority language, French), made the following observation regarding transfer of skills:

"We refer here to the higher-order skills of reading and calculating, which were

developed exclusively through the medium of French and yet seemed to be equally well and almost simultaneously developed in English. In fact, we wonder whether in these cases there actually was a transfer of any sort or whether some more abstract form of learning took place that was quite independent of the language of training. These developments took place so rapidly that we had little time to take notice of them. It seemed to us that all of a sudden the children could read in English and demonstrate their arithmetic achievement in that language." (pp. 208–9)

The notion of transfer of skills is also supported by research in cognitive science where attempts are made to look for representational schemas for complex narratives in two languages. For example, Goldman, Reyes and Varnhagen (1984) showed that bilingual children employ similar comprehension strategies when listening to Aesop's fables in two languages, providing indirect evidence that higher-order cognitive processes manifest themselves regardless of the specific language. Malakoff (1988) showed similarity in performance on analogical reasoning in French-English bilingual children in Switzerland. Additionally, a host of research on adult bilingual memory for lists of words suggests that the particular language of presentation of specific words can be remembered under some conditions, but that in general, the content transcends language (see Hamers & Blanc 1989 for a recent summary). In essence, in the act of learning concepts and skills, people form a schema that is independent of the specific language of presentation, even though the act of learning can involve active recruitment of the language to regulate thinking.

(8) Skills transfer globally rather than piece by piece.

Given that skills do transfer across languages, it is possible to think about transfer as occurring on a specific, skill-by-skill componential basis, or, more globally, where the entire structure of skills in a domain transfers as a whole. In one experimental study (Hakuta 1990), researchers taught specific concepts in the area of temporal and spatial relations in Spanish to Puerto Rican firstgraders in a bilingual program, and assessed the extent to which the transfer to English could be described componentially or holistically. It was concluded that transfer of these skills was best described holistically and depended on the general proficiency level in the first language, rather than on the specific set of skills that were taught.

(9) Expertise in translation exists in all bilingual children, demonstrating considerable ability to transfer regardless of content.

Striking evidence for the permeability of information across languages can be found in the skills of translation and interpretation, activities that many bilingual children find themselves performing for family members, schoolmates and others on a daily basis. The psycholinguistic properties of this ability have been documented among elementary school children (Hakuta 1990; Malakoff & Hakuta, in press). In controlled experimental settings, the children proved to be very skilled at avoiding pitfalls of literal translation (e.g., transferring word order or providing literal translations of idiomatic expressions). There was no evidence of confusion between the two languages, even though in normal conversations with their bilingual friends, they engaged actively in switching between their two languages (code switching). Furthermore, there was evidence to suggest that translation ability is related to language proficiency in the two languages. In addition, it seems to be related

to a metalinguistic ability that is unrelated to proficiency in the specific languages. This research has led to a number of attempts to use translation as a way of enhancing metalinguistic ability and amplifying bilingual skills (e.g., Walqui 1989).

Future directions

Research studies are inseparable from the intellectual traditions that serve as powerful undercurrents and shape the questions that are asked and the way in which data are interpreted. The understanding of research results entails a certain amount of attention to historical perspective.

From a basic researcher's perspective, it is difficult to avoid the necessary conservatism of the profession and to say that more research is needed. The conclusions cited above are the best guess available on the basis of scientific research to date. It is critical to underscore the fact that their robustness and integrity depends on their being challenged by new research employing novel techniques, novel subject populations, and novel interpretations.

Beyond advocating the continued advancement of basic knowledge, however, it might be valuable to identify larger issues around which researchers in bilingualism and educators of bilingual children could focus collaborative energy. No single researcher can begin to identify a reasonably exhaustive set of such issues, but the following are a few that might be suggested.

The discrepancy between psycholinguistic and sociolinguistic equity.
Despite large sociolinguistic differences among elite and folk bilinguals, research at the psycholinguistic level indicates a fundamental similarity in the cognitive and linguistic processes, such as in the cognitive consequences of bilingualism or the process of second language acquisition. Yet, the belief that bilingualism might be good for some but not for others is persistent, and different attributions often are made about someone who is bilingual by background (a folk bilingual) rather than by hard formal study (an elite bilingual). This discrepancy between the reality of psycholinguistic equity and sociolinguistic equity needs to be pursued. At the psycholinguistic level, work comparing bilingual processes in elite and folk bilinguals should be continued; at the sociolinguistic level, the basis of the beliefs among various groups (e.g., students, teachers, parents, school and community leaders) might be systematically addressed.

Valuing language diversity as a natural resource.
If the languages represented by American linguistic minorities were seen as a natural resource, such as species of birds or trees, there would be public clamor to set up investigative commissions to monitor and prevent their rapid extinction. The linguistic resources represented by these groups need continuous and focused attention by educators and policymakers who should exercise creativity in finding means through which these resources can be harnessed and developed. It would be useful to have vivid documentation of the status of languages and of the processes by which they disappear from the lives of the families and communities, as well as of programs that successfully develop these resources.

The assessment of bilingual students.
Although often viewed with skepticism, educational assessment plays an important role in developing curriculum, and the assessment of bilingual children is not well aligned with our broader aspirations for their development.

The development of rich yet reliable methods of assessment is critical.

Moreover, a collaborative approach toward the development of assessment provides a focused opportunity to debate and draw up an architecture of our aspirations for education programs to promote bilingualism. Such an approach toward assessment is an important augmentation to the traditional model of summative program evaluation, an activity that often makes use of limited measures and may be overly sensitive to political concerns.

Developing an international perspective. A number of international studies, such as by the Organization for Economic Cooperation and Development (OECD 1989), have shown that the United States is not alone in experiencing major changes in the linguistic and cultural diversification of its student body. Indeed, many nations of the industrialized world are facing similar issues and hold similar beliefs (including the belief that their country is alone in this "problem" and has little to learn from the experiences of other nations). Greater comparative research on how bilingualism is promoted or thwarted through the institution of schooling can help overcome our parochialism in addressing the needs of our language minority students.

Ultimately, though, basic researchers on bilingualism can be most helpful in interactively constructing, with educators, an accurate image of the bilingual child. The collage offered here advances the image of a child whose social and cognitive capacities are enriched and amplified (rather than handicapped and impaired) by experiences with multiple languages. Children in bilingual education programs are within reach of this vision, and it is our collective responsibility, as researchers and educators, to provide a learning environment that is conducive to the development of their full potential.

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About the author

Kenji Hakuta received his training under Roger Brown and Jill de Villiers at Harvard University, where he received his Ph.D. in Experimental Psychology. His main languages of interest are Japanese, Spanish and English. He has studied the various circumstances under which these languages are learned, used and lost. He has written extensively on diverse aspects of bilingualism. He is Professor of Education at Stanford University and directs its doctoral training program in bilingual education.

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